

**METHOD FOR ESTIMATING BIT-ERROR-RATIOS**  
**WITHIN AN OPTICAL COMMUNICATIONS NETWORK**

**ABSTRACT OF THE INVENTION**

A method for estimating the bit-error-ratio (BER) for a segment or whole of an optical communications network by measuring the actual distribution of bits (1s and 0s) in a transmitted data set as a function of threshold value, and directly estimating the BER at an optimal threshold value using a  $Q$ -fitting algorithm.